Taxonomic, biological and distributional notes of North American *Chrysobothris*, with the description of a new species from California

(Coleoptera: Buprestidae)

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Although Fisher's (1942) revision of the North American species of *Chrysobothris* was a very important contribution towards a classification of the group, a number of taxonomic problems were left unanswered and new ones came into being. In recent years some of these problems have been directly or indirectly resolved through the descriptions of new species, the revision of species groups, faunistic studies, the establishment of new synonymies, and the presentation of biological and distributional information. Much work remains to be done on the species, however, before a definitive classification is prepared.

The present paper is intended to add to a further understanding of the genus *Chrysobothris* by the designation of a lectotype, by discussing taxonomic characters of two species, by correcting several published misidentifications, by removing two species from synonymy, by proposing two new synonymies, and by providing information on the distribution and biology of 22 species. In addition, one new species is described.

The abbreviated collection designations of Arnett and Samuelson (1969) have been used. However, in four instances it was necessary to establish abbreviations for collections previously not so designated (WFBC = W. F. Barr, FTHC = F. T. Hovore, RHTC = R. H. Turnbow, Jr., and DSVC = D. S. Verity). Where a collection designation is not given, the specimens are in the collection of the collector.

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CHRYSOBOTHRIS AXILLARIS HORN

Chrysobothris axillaris Horn, 1886, Trans. Amer. Entomol. Soc., 13: 75.

Fisher (1942) questioned the several literature records of this species occurring in Texas, because upon examination of one of the specimens involved he found that it was *C. acaciae* Knull. Therefore, it is of importance to establish the presence of *C. axillaris* in Texas. Specimens of *axillaris* bearing the following collection data have been examined: Davis Mountains, 6000 ft., July 11, 1958, W. F. Barr, on *Quercus*; 9 miles south of Ft. Davis, Hwy 17, June 12, 1968, June 14, 1963, June 18, 1965 and June 29, 1971, G. H. Nelson, on *Quercus*; 4 miles southeast of Ft. Davis, Hwy 118, June 15, 1963, G. H. and D. E. Nelson, on *Quercus* (GHNC); 18 miles west of Ft. Davis, Jeff Davis County, July 8, 1961, R. L. Westcott, on *Quercus*; and Deadman's Canyon, Davis Mountains, July 28, 1972, R. L. Westcott, on *Quercus*.

CHRYSOBOTHRIS AZUREA LECONTE

Chrysobothris azurea LeConte, 1857, Proc. Acad. Nat. Sci. Philadelphia, p. 8.

This widely ranging species is recorded from two southern states for the first time. Specimens have been seen from LaFollette, Campbell Co., Tennessee, June 25, 1973, R. H. Turnbow, Jr. (RLWE) and a specimen from Montgomery, Alabama, May 2, 1948, R. W. Dawson (GHNC) is reported to us by G. H. Nelson.

CHRYSOBOTHRIS BARRI WESTCOTT

Chrysobothris barri Westcott, 1971, Coleopt. Bull., 25:131–136.

This species was described from material collected in Nevada and California mostly on slash and cut stumps of pinyon pine, *Pinus monophylla* Torr. and Frem. The assumption that this is a host plant is confirmed by a series of specimens reared from *P. monophylla* collected at Mahogany Flat, Panamint Range, Inyo Co., California, 8000 ft., May 6, 1970, F. T. Hovore (FTHC, RLWE).

CHRYSOBOTHRIS BREVILOBA FALL

Chrysobothris breviloba Fall, 1910, Jour. N. Y. Entomol. Soc., 18: 51.

Two male specimens from Lee Canyon, Charleston Park, Spring Mountains, Clark Co., Nevada, May 29, 1950, C. D. MacNeill (CASC) closely match specimens of *C. breviloba* from Colorado. This new state record not only represents a considerable westwardly range extension but one of a discontinuous nature. The occurrence of *C. breviloba* in the Spring Mountains is not unexpected, as this area of Nevada is known to have faunal affinities with the Rocky Mountains. The many records of *C. breviloba* in the Pacific Coast and Pacific Northwest states are based on erroneously identified specimens.

CHRYSOBOTHRIS BIRAMOSA CALIDA KNULL

Chrysobothris biramosa calida Knull, 1958, Ohio J. Sci., 58: 96.

This subspecies is recorded from the Pacific Northwest for the first time. Specimens from 5 miles southeast of Grandview, Owyhee Co., Idaho and 30 miles south-southwest of Vale, Malheur Co., Oregon, previously referred to *C. b. biramosa* (Fisher) by Barr (1971) should be placed under *C. b. calida.* The Idaho specimens (UICM) were reared from roots of *Atriplex canescens* (Torr. and Frem.) Wats.

Additional Oregon collections (ODAC), all from Malheur Co., and on *A. confertifolia* by K. J. Goeden, include the following: 15 miles southwest of Vale and 40 miles south-southwest of Vale, July 16, 1974; 4 miles south of Burns and 15 miles northwest of Burns, July 31, 1974; and Basque Station, Highway 95, July 3, 1974.

CHRYSOBOTHRIS CHRYSOELA (ILLIGER)

Buprestis chrysoela Illiger, 1800, *in* Wiedemann, Arch. Zool., 1: 122.

Two new host records are here recorded for this widely distributed species which has been associated with a rather large number of hard-

wood trees and shrubs. Specimens were reared from dead wood of the Florida fish poison tree, *Piscidia piscipula* (L.) Sarg., collected on December 5, 1970 at Brickell Hammock, Miami, Dade Co., Florida, R. L. Westcott. Emergence took place from August to December, 1971. Another specimen reported to us by G. H. Nelson bears the label, Baldwin Co., Alabama, 1971, reared ex pecan (GHNC).

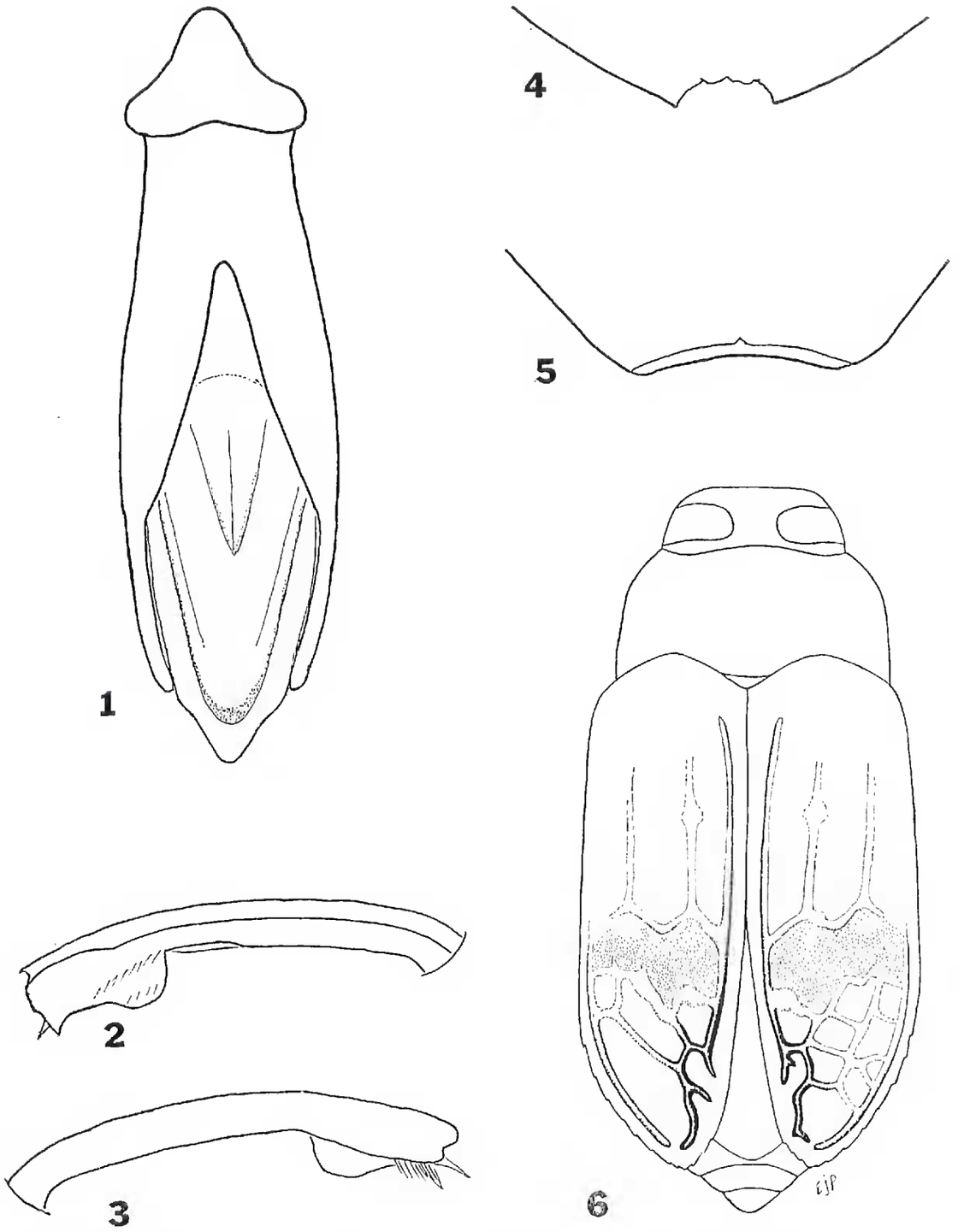
Chrysobothris cupressicona, new species
(Figs. 1–5)

Holotype male.—Moderately elongate, convex; dark purplish-brown, slightly shining, front of head brassy-green, vertex becoming cupreous, pronotum with cupreous areas near sides, apical fourth of elytra broadly cupreous in certain lights, ventral surface purplish with prosternum brassy-green at middle.

Head finely, densely punctured, more sparsely punctured at middle of front, densely but inconspicuously clothed with short, suberect and subrecumbent white hairs that are directed inferiorly; vertex with median, longitudinal dark purple integumental line, not carinate; front without callosities, subflattened at middle; clypeus with front margin acutely incised at middle, broadly, nearly semicircularly rounded laterally; antenna conspicuously serrate from 4th segment which is subequal in length to 2nd and slightly shorter than 3rd segment, 3rd segment elongate, subcylindrical, segments 4–10 slightly wider than long.

Pronotum one and three-fourths times wider than long, widest near front, irregularly convex with very finely impressed median line on basal half and broad, shallow sublateral depression near middle; sides broadly, feebly bisinuate except at front where they are broadly rounded and at base where they are slightly constricted; hind angles subrectangular, blunted; hind margin strongly lobed at middle, evenly arcuate in front of each elytron; lateral margin associated with slightly elevated, arcuate smooth ridge that extends from beneath hind angle to about middle; front margin shallowly emarginate with broad median lobe; surface rather finely, densely punctured, with irregular impunctate area on disk on either side of middle, lateral areas more densely and coarsely punctured, pubescence consisting of few scattered short white hairs that are indistinct but become more evident near hind angles.

Elytra slightly more than one and three-fourth times longer than wide; base of each elytron nearly semicircularly rounded; sides subparallel behind humeri, then broadly but feebly expanded to behind middle and then broadly narrowing to apices which are separately rounded, indistinctly serrate and which are without sutural tooth; each elytron irregularly contoured, with small subbasal circular depression near scutellum and a very shallow, irregular, and elongate depression along humerus and broad, shallow discal depression in front of middle, foveae not evident, sutural and sublateral costae weakly developed behind middle, humeral costae weakly developed on apical fourth, sutural and humeral costae forming indistinct "Y" in front of apex, discal costa evident on apical half only in certain lights, humeral costa broken by small, dense concentration of punctures at about apical third; surface finely, densely punctured becoming more shallowly and finely punctured apically, uniformly clothed with rather sparsely placed, short, suberect white hairs.



FIGS. 1–6. Fig. 1. *C. cupressicona*, male genitalia, ventral view. Fig. 2. *C. cupressicona*, male protibia, rear view. Fig. 3. *C. cupressicona*, male protibia, front view. Fig. 4. *C. cupressicona*, apex of female abdomen, ventral view. Fig. 5. *C. cupressicona*, apex of male abdomen, ventral view. Fig. 6. *C. lata*, dorsal view.

Prosternum densely but inconspicuously clothed with short, subrecumbent white hairs; anterior half with two transverse depressions at middle; front margin with well developed, broad median lobe which is subtruncate at middle and obliquely directed downward.

Abdomen finely, sparsely shallowly punctured, becoming more finely and densely punctured at sides of sternites 1 and 2; sternites 1–5 with faintly indicated, slightly elevated elongate smooth area near sides; last sternite with lateral margins not serrate, hind margin broadly very shallowly emarginate (Fig. 5).

Legs short and stout; femora cupreous, tibiae and tarsi aeneous black; profemur with broad, subacutely developed triangular tooth at middle, outer margin of which is not serrate; protibia arcuate with conspicuous, semicircularly developed lobe on inner margin at about apical three-fourths, beyond which margin is emarginate (Fig. 3); mesotibia slightly arcuate and with slight apical dilation on inner margin; metatibia straight, first segment of metatarsus without evidence of small plantula at apex. Length 8.7 mm., width 3.45 mm.

Female.—Similar to male except for the following: the front of head is uniformly coppery-purplish and ventral surface is without greenish reflections; protibia lacks subapical dilation; hind margin of last abdominal sternite is faintly notched or has distinct acute or broadened notch at middle (Fig. 4).

Holotype male (California Academy of Sciences) from Santa Lucia Range, 2 miles northwest of Cuesta Pass, San Luis Obispo County, California, J. Powell (#62E3) reared from *Cupressus goveniana* cone collected May 5, 1962 and emerged May 15, 1962. Twelve male and 11 female paratypes from type-locality on *C. goveniana* May 5, 1962 or reared from cones of *C. goveniana* collected May 4 and 5, 1962 by J. Powell and emerged May 12, 15, and 21, 1962, by June 20, 1962, in late 1962 and in late 1963. One male paratype from same type-locality reared from cones of *C. sargenti* collected May 10, 1975 and emerged June 5, 1975, Westcott and Hensley. Seven male and 7 female paratypes from Cuesta Ridge, San Luis Obispo County, California, April 27, 1973, F. G. Andrews and D. Shaw, reared from cones of *C. sargenti*. Paratypes in the collections of the California Department of Agriculture, the University of California, Berkeley, W. F. Barr, G. H. Nelson and R. L. Westcott.

This species was erroneously treated as *C. purpurata* Bland by Powell (1965) who reported on its biology. It is however, distinct from that species which was described from specimens collected in Nebraska. Its closest relationships appear to be with *C. fragariae* Fisher which is known from the Pacific Northwest and from the roots of species of *Fragaria* and *Eriogonum*. In Fisher's key (1942), *C. cupressicona* will run out to *C. fragariae* regardless of one's interpretation of the convexity of the pronotum as detailed in couplet 5. However, the two species can easily be separated by differences in coloration, form of the antenna and structure of the male genitalia. In *C. cupressicona* the elytra tend to be darkened, the ventral surface is shining purplish and the front of the head of the male is distinctly green. The elytra of *C. fragariae* tend to be coppery in color, the ventral surface is blackish and the front of the head of the male is dark purplish. The third antennal segment of *C. cupressicona* is subcylindrical and only slightly enlarged apically, whereas it is distinctly

subtriangular on *C. fragariae.* The male genitalia of *C. cupressicona* are less elongate than those of *fragariae*, lack a conspicuous lateral constriction, and have the distinctive apical section of the parameres relatively much longer (Fig. 1).

As with so many species of *Chrysobothris*, considerable variation is evident in *C. cupressicona.* Notably the elytra range from dark coppery-purplish to brassy black in color. The sides of the pronotum vary from an evenly rounded to a bilobed condition, with a slight construction at the middle; the upper surface of the pronotum is slightly convex to longitudinally flattened at the middle; anteriorly the pronotum may have a small and rounded or obliquely transverse, feebly elevated, non-punctured area on either side of the middle rather than being uniformly punctured. Finally, the lateral margins of the last abdominal sternite are entire to feebly or irregularly serrate.

The discrepancy in the use of names for the host plant of *C. cupressicona* is attributed to differences in species concepts of *Cupressus* rather than with identifications. Powell (in litt.) indicates that he followed Little (1953) and thus referred to the host as *C. goveniana.* The other collectors who cite the host plant as *C. sargenti* have followed the concepts of Wolf and Wagener (1948) and others.

CHRYSOBOTHRIS DELETA LECONTE

Chrysobothris deleta LeConte, 1860, Trans. Amer. Philos. Soc., (n.s.) (1859) 11: 255.

Rearing records indicate that this species utilizes several woody rangeland shrubs of the family Compositae as host plants. The host records of yellow pine and mesquite as cited by Fisher (1942) are surely erroneous.

Specimens have been reared from the crown of *Gutierrezia sarothrae* (Pursh.) Britt. and Rusby collected 25–26 miles east of Mitchell, Wheeler Co., Oregon during May 1972, R. L. Westcott and R. L. Penrose (RLWE, ODAC) and from the upper root of *Chrysothamnus nauseosus* (Pallas) Britt. collected 3 miles south of Raft River, Cassia Co., Idaho on June 21, 1961, W. F. Barr (UICM). Barr (1971) listed the only other confirmed host plants of *C. deleta* as *Artemisia tridentata* Nutt. and *A. tripartita* Rydb.

The recorded association of this species with the shrub *Purshia tridentata* (Pursh.) DC. probably is not indicative of a true host plant relationship. Interpretation of several collections made recently in Oregon suggest the association to be one relating to adult feeding or behavior

rather than larval development. Large numbers of *C. deleta* were collected from the tips of live twigs of *P. tridentata* in the late afternoon and early evening near Boardman and Hermiston, Umatilla Co., June 29 and July 7, 1969 by K. J. Goeden (ODAC, RLWE). The known host plant *G. sarothrae* is abundant at these two collection sites.

CHRYSOBOTHRIS EDWARDSII HORN

Chrysobothris edwardsii Horn, 1886, Trans. Amer. Entomol. Soc., 13: 71.
Chrysobothris chamberlini Obenberger, 1940, Sbornik Entomol. Odd. Nar. Mus. Praze, 18: 93. **New synonym.**

This species has been recorded from Arizona, California, New Mexico and Texas. It has been reported to utilize the widely distributed desert shrub Ocotillo, *Fouquieria splendens* Engelmann as its host. A large series of specimens was reared in 1965 and 1966 from dead and dying branches of *F. splendens* collected 26 miles south of Needles, San Bernardino County, California in April 1965, W. F. Barr (UICM, WFBC, RLWE).

Obenberger based his description of *C. chamberlini* on a male specimen from "California." This specimen, which is located in his collection in Prague, does not differ from *C. edwardsii.*

Chamberlin's record (1926) of *C. edwardsii* from Baja California was based on a misidentification. This record should be referred to *C. schaefferi* Obenberger.

CHRYSOBOTHRIS FISKEI FISHER

Chrysobothris fiskei Fisher, 1942, U.S. Dept. Agric. Misc. Publ. 470, p. 221.

Fisher described this species from specimens that had been reared from *Cercis reniformis* Engelmann, collected at Montell, Texas. A new host record and an extension of its known distributional range are based on a male specimen reared July 1974 from dead wood of *Quercus* sp., collected in the Davis Mts., Jeff Davis Co., Texas, 6000 ft., F.T. Hovore (RLWE).

CHRYSOBOTHRIS IGNICOLLIS HORN

Chrysobothris ignicollis Horn, 1885, Trans. Amer. Entomol. Soc., 12: 145.

In his revision of the genus Fisher (1942) stated that he had not seen specimens of this species from Nevada, although he indicated that Chamberlin (1926) had recorded it from the state. Because many of Chamberlin's identifications and records are suspect it seems

worthwhile to confirm the occurrence of *C. ignicollis* in Nevada. Specimens have been identified from Pioche, Lincoln Co., June 25, 1966, R. L. Westcott on *Juniperus* sp.

CHRYSOBOTHRIS INAEQUALIS WATERHOUSE

Chrysobothris inaequalis Waterhouse, 1887, Biol. Centr.-Amer., Ins., Coleopt., Buprestidae, vol. 3, pt. 1, p. 42.

Chrysobothris vandykeana Obenberger, 1940, Sbornik Entomol. Odd. Nar. Mus. Praze, 18: 94. **New synonym.**

This Mexican species differs from most others in the nature of the dimorphism between the sexes. Although the male lacks an apical dilation of the protibia, it can be distinguished from the female by having the front of the head finely, densely punctured and very densely clothed with short, erect yellowish hairs and by having the hind margin of the last abdominal sternite broadly arcuately emarginate. In addition, the upper, inner margin of each eye of the male is slightly emarginate. The ventral surface of each sex is shining cupreous but the thoracic sternites of the female tend to be greenish, especially medially. Specimens have been seen from 40 miles east of Mexico City, Mexico D. F., 9500 ft., July 3, 1955, D. Giuliani (CASC).

The new synonymy is proposed after examining the type specimen of *C. inaequalis* at the British Museum (Nat. Hist.) and the type specimen of *C. vandykeana* in the Obenberger collection at Prague. The latter, described from a male specimen from San Diego, California, probably is incorrectly labeled.

CHRYSOBOTHRIS LARICIS VAN DYKE

Chrysobothris laricis Van Dyke, 1916, Entomol. News, 27: 409.

New state and provincial records for this species include Arizona, Wyoming, Montana and Alberta. Specific collection records are Greer, Apache Co., Arizona, 8000′, July 3, 1953, A. and H. Dietrich (CUIC); Centennial, Albany Co., Wyoming, August 11, 1967, D. Ribble and August 17, 1968, R. J. Lavigne (ESUW); Yellow Bay, Flathead Lake, Lake Co., Montana, July 25, 1967, R. L. Westcott; and Waterton Lakes Nat. Park, Alberta, July 31, 1965, R. L. Westcott on *Pinus contorta* slash.

The only previous Utah record for this species is that of Chamberlin (1926). Confirming records for the state are: Long Hollow, Dixie Nat. For., June 23, 1960, Brigham Young University Bark Beetle Exped.; The Pass, Table Cliff Mt., Garfield Co., 9300′, June 1936;

and Aquarius Plateau, Garfield Co., 9–10,000′, June 1936, V. M. Tanner (all BYUC).

The California records for *C. laricis* (Van Dyke, 1916 and Chamberlin, 1917) undoubtedly are referrable to *C. caurina* Horn. The occurrence of *C. laricis* in California is yet to be established.

CHRYSOBOTHRIS LATA KERREMANS

Chrysobothris lata Kerremans, 1899, Ann. Entomol. Soc. Belg., 43: 336.

Chrysobothris lata was treated as an unrecognized species by Fisher (1942). Examination of the type specimen from "Florida" in the British Museum (Nat. Hist.) indicates that it is indeed different from any of the known U.S. species. On the other hand, it does appear to be closely related to *C. rotundicollis* Laporte and Gory, from "Santo Domingo," especially in size and coloration, in the shape and sculpturing of the pronotum and in the presence and development of elytral costae and foveae. The two type specimens of these species differ mainly in the nature of the costae near the elytral apices. With *C. lata* (Fig. 6) the sutural costae are interrupted and joined with two distinctly elevated and recurved discal costae that present a somewhat "mesh-like" pattern before their juncture with the sutural costa. With *C. rotundicollis* the sutural costae are the most strongly elevated and are entire and slightly sinuate apically. Each of these costae joins with a slightly elevated discal costa in front of the apex. These differences must be regarded as species distinctive for the present. However, the possibility of *C. lata* being a junior synonym of *C. rotundicollis* cannot be dismissed.

CHRYSOBOTHRIS NEOTEXANA B. DOZIER

Chrysobothris neotexana B. Dozier, 1955, Proc. Entomol. Soc. Washington, 57: 75.
Chrysobothris texana, Franklin and Lund, 1956, Georgia Agric. Expt. Sta. Tech. Bull., n. s. 3, p. 31. (misidentification).

This species has been known only from its type locality in North Carolina except for a possible record in South Carolina (Kirk, 1970). The record of *C. texana* LeConte in Georgia by Franklin and Lund undoubtedly refers to *C. neotexana.* An additional Georgia record is from Whitehall Forest, Clarke Co., June 5 and September 16, 1972, R. H. Turnbow, Jr. (RHTC, RLWE).

New state records are based on specimens from Montgomery Co., Arkansas, May 24, 1963, L. A. Combre, on *Juniperus virginiana* (RHTC,

RLWE), and from Carthage, Smith Co., Tennessee, June 2, 1955, B. Dozier (BKDC, RLWE).

CHRYSOBOTHRIS PENINSULARIS SCHAEFFER

Chrysobothris peninsularis Schaeffer, 1904, Jour. N. Y. Entomol. Soc., 12: 207.

Apparently this Sonoran Desert species has not as yet been recorded from California. Collection records from this state include: Imperial County: Mt. Springs, June 2, 1961, G. H. Nelson. Riverside County: Pinyon Flats, June 10, 1962, D. S. Verity; 1 mile south of Palm Desert, June 5, 1958, G. H. Nelson; 2.5 miles south of Palm Desert, July 8, 1958, G. H. Nelson, on *Hymenoclea salsola* Torr. and Gray; 2.7 miles south of Palm Desert, May 20, 1949, D. S. Verity; Snow Creek, June 1 and 2, 1957, R. L. Westcott and June 13, 1958 and 19, 1960, D. S. Verity. San Bernardino County: Morongo Valley, June 1, 1957, R. L. Westcott and July 22, 1949, D. S. Verity; Cedar Canyon, Providence Mountains, June 10, 1940, W. F. Barr and June 17, 1962, G. H. Nelson, D. S. Verity; 5 and 12 miles northwest of Essex, June 16, 1962, G. H. Nelson; Mitchell Caverns, Providence Mountains, June 16, 1962, G. H. Nelson, D. S. Verity. San Diego County: Mountain Springs, August 1, 1961, D. S. Verity, 4 miles east of Banner, June 2, 1968, D. S. Verity. All collections except for one from 2.5 miles south of Palm Desert were made from *Acacia greggii* Gray which undoubtedly is the host of this species.

CHRYSOBOTHRIS PIUTA WICKHAM

Chrysobothris piuta Wickham, 1903, Canad. Entomol., 35: 67.

The known distributional range and ecological occurrence of this species is expanded with the following additional collections: Pioche, Lincoln Co., Nevada, July 9, 1965, W. F. Barr on branches of *Cowania stansburiana* Torr. and on flowers of *Penstemon* sp.; Kyle Canyon, Clark Co., Nevada, July 29 and 30, 1961, R. L. Westcott on *Cercocarpus ledifolius* Nutt. and 3 miles south of Levan Jct., Juab Co., Utah, June 18, 1969, M. M. Furniss on limbs of *Cercocerpus ledifolius* Nutt. (UICM).

CHRYSOBOTHRIS PRASINA HORN

Chrysobothris prasina Horn, 1886, Trans. Amer. Entomol. Soc., 13: 118.

This species has been recorded from numerous localities in southern California and there is one record of its occurrence in northern Arizona, (Nelson, 1967). A collection from Benton, Mono Co., California, June

30, 1960, W. F. Barr, on *Ephedra* sp. constitutes an extension of its known range in that state and one from Fiery Furnace, Arches Nat. Park, Grand Co., Utah, June 26, 1972, R. L. Westcott (RLWE) and Ichthyosaur State Mon., Nye Co., Nevada, 7000 ft., June 21–24, 1960, R. L. Westcott, on *Ephedra viridis* Cov. represent new state records and considerable overall range extensions for this species.

Chamberlin's records (1917 and 1926) of *C. prasina*, having been collected in Sonoma County and at Alameda, California should be regarded as misidentifications or as being based on mislabeled specimens. These localities in northern California are ecologically very different from known collection sites of this species and its known host plants *Ephedra* spp. do not occur at either location.

CHRYSOBOTHRIS PUSILLA LAPORTE AND GORY

Chrysobothris pusilla Laporte and Gory, 1837, Hist. Nat. icon. insectes Coleopt., 2: 53.

This species, well known from the eastern United States, is recorded from Minnesota and from west of the Mississippi River for the first time. A single specimen from Pelican Lake region, Crow Wing Co., Minnesota, July 7, 1910, Robert H. Wolcott (DEFW) has been examined.

CHRYSOBOTHRIS QUADRILINEATA LECONTE

Chrysobothris quadrilineata LeConte, 1860, Trans. Amer. Philos. Soc., (n.s.) (1859) 11: 233.

The known distributional range of this widely ranging but uncommon species is extended approximately 420 miles southeastward by specimens collected at 23 miles north of Uvalde and Garner State Park, Uvalde Co., Texas, June 18, 1968, G. H. Nelson and June 22–24, 1961, R. L. Westcott, on *Juniperus* sp. These collections constitute a new state record.

Linsley and Ross (1940) established the first and only record of *C. quadrilineata* from California. A second collection approximately 400 miles northwest from the first can now be reported from Arroyo Bayo, Mt. Hamilton, Santa Clara Co., May 12, 1951, J. W. Tilden (CASC).

Chamberlin (1926) listed this species from Goldfield, Nevada, 7000 ft.; the only record for the state. The material on which this record is based must have come from nearby mountains, because the community of Goldfield is at an elevation 5700 ft. A confirming record for Nevada

extends this beetle's range in the state approximately 80 miles to the north. A specimen was collected at Ichthyosaur State Mon., Nye Co., 7000 ft., June 21–24, 1960, R. L. Westcott, on *Juniperus* sp.

Inasmuch as exact collection records for this species are scarce it seems appropriate to present the following: 5 miles west of Portal, Cochise Co., Arizona, June 20, 21 and 26, 1958, W. F. Barr, on *Juniperus pachyphloea* Torr.; Payson to Pine, Gila Co., Arizona, July 12, 1964, J. A. Robertson (DSVC); and 7 miles south of Jemez Springs, Sandoval Co., New Mexico, June 7, 1962, S. G. Watkins (DSVC).

Tanner's (1928) record for this species' occurrence in Utah and its association with western yellow pine is based on a misidentification. The specimen involved is *C. woodgatei* Champlain and Knull. Therefore, it should be emphasized that to our knowledge the only known hosts for *C. quadrilineata* are several species of juniper.

CHRYSOBOTHRIS ROSSI VAN DYKE

Chrysobothris rossi Van Dyke, 1942, Proc. Calif. Acad. Sci., (4) 24: 117.

A specimen of this species has been reared from the wood of *Juniperus californica* Carr. collected near Llano, Los Angeles Co., Calif., F. T. Hovore. Emergence took place on August 2, 1971. This host is notable because *C. rossi* has been collected and reared previously only from leguminous trees and shrubs. Other California records are: 1 mile south of Palm Desert, Riverside Co., June 5, 1958, G. H. Nelson, on *Cercidium floridum* Benth.; 2 miles south of Palm Desert, Riverside Co., May 10, 1958, R. L. Westcott; and 1 mile south of Frink Springs, Imperial Co., July 14, 1974, D. S. Verity, on *Cercidium floridum*. These distributional records are new for California. Until now this species has been known from Baja California, Arizona and Texas.

CHRYSOBOTHRIS ROTUNDICOLLIS LAPORTE AND GORY

Chrysobothris rotundicollis Laporte and Gory, 1837, Hist. Nat. icon. insectes Coleopt., 2: 51.

Two specimens, a male and a female from "Santo Domingo," which constitute the type series of this species, are located in the Museum National d'Histoire Naturelle. The female specimen most closely matches the original description especially in the shape of the pronotum and overall length, and is here designated the lectotype. This specimen definitely is not *C. dentipes* (Germar). Therefore, *C. rotundicollis* must be removed as a synonym of that species where it was placed by Fisher (1925). Until *C. rotundicollis* can be studied in relation to the

West Indian *Chrysobothris* fauna and properly placed, it must be accorded specific status. Its relationships with *C. lata* have been discussed under that species.

CHRYSOBOTHRIS SEXFASCIATA SCHAEFFER

Chrysobothris sexfasciata Schaeffer, 1919, Jour. N. Y. Entomol. Soc., 26: 212.

No host plant has been recorded for this species which has been known from Key West, Florida, South Bimini and several localities in Cuba. A specimen was reared July 10, 1971, from a branch of button-mangrove or buttonwood, *Conocarpus erectus* L. collected November 29, 1970, at Tavernier, Key Largo, Monroe Co., Florida, R. L. Westcott and one was beaten from this plant at the same locality May 31, 1969. Another specimen was beaten from white mangrove, *Laguncularia racemosa* (L.) Gaertn. f. on Crawl Key, Monroe Co., Florida, R. L. Westcott.

CHRYSOBOTHRIS SUBCYLINDRICA MOTSCHULSKY

Chrysobothris subcylindrica Motschulsky, 1859, Soc. Imp. Nat. Moscow Bull. 32, p. 182.

As pointed out by Fisher (1942) the name *C. subcylindrica* has been listed as a synonym of *C. deleta* LeConte since the 1886 publication of Horn. This synonymy is untenable. First, on a priority basis Motschulsky's name was proposed in 1859 and LeConte's in 1860. Secondly, there is evidence that each of the two names represents a different species. *Chrysobothris subcylindrica*, from Nova Helvetia [Sacramento, California], was described from a locality that falls outside the known geographical and ecological range of *C. deleta*. Therefore, we are resurrecting Motschulsky's name, but must regard it as representing an unknown species for the present. Perhaps it is close to or synonymous with *C. grindeliae* Van Dyke which is known from the lower Sacramento Valley of California or perhaps with *C. bisinuata* Chamberlin, also from the Sacramento Valley.

CHRYSOBOTHRIS TEXANA LECONTE

Chrysobothris texana LeConte, 1860, Trans. Amer. Philos. Soc., (n.s.) (1859) 11: 234.

This species is recorded from Nevada for the first time on the basis of specimens from Pioche, Lincoln Co., August 9, 1965, W. F. Barr and R. L. Westcott, on *Juniperus* sp. and June 25, 1966, R. L. Westcott.

This record is not unexpected because *C. texana* is widely distributed in the southwestern and southern Rocky Mountain states and it occurs as far north as southern Idaho. References to this species in the southern states are attributable to *C. neotexana* B. Dozier.

CHRYSOBOTHRIS ULKEI LECONTE

Chrysobothris ulkei LeConte, 1860, Trans. Amer. Philos. Soc., (n.s.) (1859) 11: 240.

Although described from Texas and commonly collected in extreme southeastern Arizona, this species has not been recorded from New Mexico. New records for that state include: 1 mile north of Rodeo, Hidalgo Co., Sept. 5, 1963, D. S. Verity, on *Ephedra trifurca* Torr.; 3 miles north of Rodeo, Hidalgo Co., July 29, 1972, R. L. Westcott, on *Ephedra trifurca*; and 2 miles west of Gage, Luna Co., July 28, 1972, R. L. Westcott, on *Ephedra* sp.

To our knowledge, *C. ulkei* has not been reared. However, in the vicinities of Portal, Cochise Co., Arizona and Rodeo, New Mexico, large numbers have been collected almost exclusively from *E. trifurca.* There is little doubt that this is a host plant.

Chamberlin's (1926) record of this species from Amedee, [Lassen Co.] California has to be regarded as a misidentification. Any specimens resembling *C. ulkei* from that locality most likely would be *C. biramosa calida.*

CHRYSOBOTHRIS WOODGATEI CHAMPLAIN AND KNULL

Chrysobothris woodgatei Champlain and Knull, 1922, Entomol. News, 33: 144.
Chrysobothris quadrilineata Tanner, 1928, Ann. Entomol. Soc. Amer., 21: 274 (misidentification).

The specimen from Zion National Park, Washington Co., Utah, collected on May 17, 1924, by V. M. Tanner and identified by him as *C. quadrilineata* has been examined. It has proved to be *C. woodgatei.* The correction of this identification thus establishes the presence of this species in Utah for the first time. Tanner indicated that his specimen was associated with *Pinus ponderosa* Lawson.

LITERATURE CITED

ARNETT, R. H., JR., AND SAMUELSON, G. A. 1969. Directory of Colcoptera collections of North America (Canada through Panama). Purdue Univ., pp. 1–122.

BARR, W. F. 1971. Family Buprestidae, *in* Hatch, Beetles of the Pacific Northwest, part V. Univ. Washington Press, pp. 55–89.

CHAMBERLIN, W. J. 1917. Notes on some Buprestidae of northern California (Col.). Entomol. News, 28: 129–139.

CHAMBERLIN, W. J. 1926. Catalogue of the Buprestidae of North America, North of Mexico. Corvallis, Ore., pp. 291.

FISHER, W. S. 1925. A revision of the West Indian Coleoptera of the family Buprestidae. Proc. U.S. Natl. Mus., 65: 1–207.

FISHER, W. S. 1942. A revision of the North American species of buprestid beetles belonging to the tribe Chrysobothrini. U. S. Dept. Agric. Misc. Publ. no. 470, pp. 1–275.

HORN, G. H. 1886. A monograph of the species of *Chrysobothris* inhabiting the United States. Trans. Amer. Entomol. Soc., 13: 65–124.

KIRK, V. M. 1970. A list of the beetles of South Carolina, part 2—Mountain, Piedmont, and Southern Coastal Plain. So. Carolina Agric. Expt. Sta. Tech. Bull. 1038, pp. 1–117.

LINSLEY, E. G., AND ROSS, E. S. 1940. Records of some Coleoptera from the San Jacinto Mountains, California. Pan-Pac. Entomol., 16: 75–76.

LITTLE, E. L., JR. 1953. Check list of native and naturalized trees of the United States (including Alaska). U.S. Dept. Agric. Handbook 41, pp. 1–472.

NELSON, G. H. 1967. Notes on the Buprestidae (Coleoptera): Part V, with descriptions of previously unknown sexes. Coleopt. Bull., 21: 23–27.

POWELL, J. A. 1965. Rearing records for five conifer feeding buprestids in California (Coleoptera: Buprestidae). Pan–Pac. Entomol., 41: 133–135.

TANNER, V. M. 1928. The Coleoptera of Zion National Park, Utah. Ann. Entomol. Soc. Amer., 21: 269–279.

VAN DYKE, E. C. 1916. New species of Buprestidae (Col.) from the Pacific States, with notes concerning a few others. Entomol. News, 27: 405–412.

WOLF, C. B. AND WAGENER, W. W. 1948. The New World Cypresses. Aliso, 1: 1–444.

RECENT LITERATURE

A CATALOGUE OF THE STAPHYLINIDAE OF AMERICA NORTH OF MEXICO (COLEOPTERA). J. Moore and E. F. Legner. University of California Special Publication 3015. 514 pp., 1975.

Unlike most catalogues, which compress a maximum amount of information into a minimum of space, this work is double-spaced throughout, and contains numerous unfilled pages. Consequently its weight is almost as great as that of the Leng Catalogue (with supplements). The bibliography, which was published previously (Hilgardia, 42:511–563) includes only North American literature, omitting references from the "exotic literature to those North American species and their synonyms which have a more extended range."—Editor.